# Getting a Yes. An Experiment on the Power of Asking

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# Getting a Yes. An Experiment on the Power of Asking*

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**Abstract**

This paper studies how the request for a favor has to be devised in order to maximize its chance of success. We present results from a mini-dictator game laboratory experiment in which giving entails an efficiency gain. Before the dictator decides, the recipient can send a free-form text message to the dictator. We find that the content of a message and its form do matter in the decision to give. Putting effort into the message by writing in a humorous and creative way pays off. We argue that this can be interpreted in terms of reciprocity. Mentioning reasons why the money is needed increases the generosity of dictators as well. Additionally, we find differences in the behavior of male and female dictators. Only men react positively to efficiency arguments, while only women react to messages that emphasize the specific power and responsibility of the dictator.

*Keywords:* dictator game, communication, inequality, experiment

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# 1 Introduction

There are numerous situations in which one person asks another one a favor. A person on the street asking you for money, a roommate asking you to share your food with her, a charity organization asking you for a donation or a stranger asking you to share your place on a bench in a beer garden are just some examples of many. These social interactions differ in several aspects. The person that asks you could be familiar or unfamiliar, she may be more to your liking or less, she could be the beneficiary of the favor or just an intermediary (e.g. a charity organization), and you may be asked verbally or in written form. However, what most of these situations have in common is that doing somebody a favor or sharing something with someone is welfare-improving, in the sense that the party benefitting from the favor has a higher marginal utility for the requested good.

In this paper, we are interested in the effect of communication on the decision to do something for or share something with someone. More precisely, we are mainly interested in the content and form of written communication, i.e. which arguments are more or less successful and whether there are other aspects of written communication that systematically increase or decrease the chance of a successful request. Apart from providing advice for communication in interpersonal interactions, our research may be useful for charity organizations that try to convince potential donors to give money, other goods or time to a particular cause. In the area of business science, our findings might be of interest for research on negotiations, e.g. when analyzing which aspects of communication are beneficial in attempts to convince the other party to agree to a specific arrangement.

In order to study our research question, we conducted a controlled laboratory experiment in which subjects participated in a modified dictator game. Dictators made a binary decision to either share their endowment with the receiver or to keep their endowment for themselves. The decision to share their endowment with the receiver resulted in a decrease in the payoff

to the dictator and an increase in the sum of payoffs to both players, representing the welfare improvement of a kind action mentioned above. Before making their decision, dictators received a free-form message written by the receiver.

We find clear evidence that both the content of a message and its form influence the dictator's decision to give. Furthermore, messages that show that the author exerted effort by writing a long note without many spelling mistakes, as well as messages that are humorous, exhibit higher chances of success. It seems that if the author of a message is "kind" to the dictator by putting effort into a creative message and its correct form, the dictator will be more inclined to also act kindly and share the money. Hence, we argue that this can be explained by a reciprocity motive. Additionally, informing potential givers as to the reasons why the money is specifically needed is shown to be an effective way of increasing generosity. Moreover, our results indicate that there are some differences in the responses of male and female dictators. Arguing that generosity will increase the sum of the payoffs will improve the chances of a successful request only for male dictators. Women, on the other hand, react positively to statements acknowledging their specific power and responsibility, and to messages that contain the word "thanks," a word which is usually used as a closing remark, such as "thanks in advance." We argue that both characteristics of a message create social pressure in a subtle way, and that women seem to react more strongly to this kind of social pressure.

The rest of the paper is structured as follows. Next, the relevant literature is discussed. Afterwards, we present the design of our experiment and introduce our message categories in Section 3. Then, predictions regarding the dictators' behavior originating from both theory and previous results in the literature are debated in Section 4. Section 5 presents the results of the experiment, which are subsequently discussed in Section 6. Section 7 concludes.

# 2 Related Literature

Situations in which one party can act altruistically[1] towards another party and in which there is no strategic interaction between these two parties have been studied extensively using the dictator game in the experimental economics literature (starting with Kahneman et al., 1986; Forsythe et al., 1994). In the original game, one party (the dictator) can decide how to divide her endowment between herself and another party (the receiver). It has been found that a significant fraction of people behave altruistically to some extent (see Engel, 2011, for a review). Several explanations for this phenomenon have been mentioned in the literature over the previous years, including social preferences such as inequity aversion (Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000; Charness and Rabin, 2002), feelings of empathy towards the other person (Batson et al., 1988; Batson, 2002; Andreoni and Rao, 2011; de Vignemont and Singer, 2006; Edele et al., 2013), following social norms regarding fairness (Bolton et al., 1998; Camerer and Thaler, 1995; Zhao et al., 2017) which, in turn, is closely related to guilt aversion (Charness and Dufwenberg, 2006; Battigalli and Dufwenberg, 2007)[2] and self-image concerns (Dana et al., 2007; Tonin and Vlassopoulos, 2013; Ploner and Regner, 2013).

Even though communication plays an important role in a variety of social interactions, including the decision to do someone a favor, surprisingly few studies have implemented some sort of communication into their experimental design. Allowing communication in an experiment has the disadvantage that it reduces the level of control and that the analysis of the written data is less straightforward than it would be with numerical data. This is particularly true when free-form communication is used. Nevertheless, considering the great importance of communication, it cannot be disregarded when studying social interactions.

Closest to our experiment is one by Andreoni and Rao (2011), in which either only the receiver,

[1] In the following, a behavioral definition by which altruistic acts are "costly acts that confer economic benefits on other individuals"(Fehr and Fischbacher, 2003, p. 785) is used.

[2] However, Ellingsen et al. (2010) do not find evidence for guilt aversion in a dictator game.

only the dictator, none of them or both can write a free-form message and, in the case of the receiver, a numerical request as well. In the treatment most relevant to our research question, in which only the receiver can communicate, givings are significantly higher than without communication. The messages were categorized by independent raters into the categories of Fairness, Friendly Greeting, Flattery, Acknowledge Power and Need. While communication by itself (message + numerical request) has an effect on generosity, the content of the communication does not seem to have an effect. In their study, Andreoni and Rao hypothesize that the reason for this may be that the content is too obvious (nearly half of the messages appealed to fairness norms). However, also the number of observations is relatively small, since only 20 receivers were randomly matched to 20 dictators for two rounds. In our study, we focus on one-sided, free-form communication from the receiver to the dictator and modify the design in such a way that it has more power to find systematic differences in dictator's behavior resulting from differences in the content and form of the particular message. Primarily, this is done by letting dictators make multiple binary giving decisions in response to a sequence of messages sent by different receivers.

Mohlin and Johannesson (2008) compare the results of a dictator game in which the receiver can either write a message to the dictator or not.[3] They find that communication significantly increases givings. Additionally, they used a treatment in which a third party sends a message to the dictator to distinguish between a "content effect" and a "relationship effect." Their results indicate that both effects are important and increase givings by a similar magnitude. Furthermore, Mohlin and Johannesson classified the messages into three categories (moral reasons, personal arguments and non-argumentative content) but cannot find any differences in giving behavior with respect to these categories.

Similar to one of the treatments by Andreoni and Rao (2011), Langenbach (2016) studies the effect of a combination of a free-form message and a numerical request sent by the receiver in

[3]In their study, they used a double-blind procedure (see Hoffman et al., 1994).

a dictator game. He also finds that givings are significantly higher with communication than without communication. Differences between the numerical request and the messages as well as in the content of the messages are not analyzed further in the paper.

Some studies have looked at the effect of communication in a dictator game without allowing free-form communication. Charness and Rabin (2005) let receivers express their preference about how they would like to be treated by either sending the message "Help me," "Don't help me" or, in some cases, no message at all to dictators before dictators decided about the allocation of funds in a series of simplified dictator games in which, similar to our experimental design, only two allocations were possible. They find that more dictators chose the option that benefitted the receiver when the receiver asked for help. Rankin (2006) allowed receivers to request a certain amount of money to be given to them by the dictator. When the request is for at most half of the total amount to be divided, the request has a positive effect on the generosity of the dictator compared to a treatment without a request possibility. A request for more than half, however, has a negative effect on the amount transferred by the dictators to the receivers. This result has also been found by Andreoni and Rao (2011). In a similar experiment without a control treatment, Yamamori et al. (2007) find nearly the same results: For a request asking for less than half of the funds, higher requests increase givings. Letting receivers only choose from a set of pre-written messages or letting them only request a certain amount of money, as it is done in these studies, increases the internal validity of the results because analyzing the data is straightforward. However, at the same time, it decreases the external validity, since such a reduced form of communication does not capture the richness of communication in the real world. Because we are interested in exactly these differences in the content and the form of messages which may have an effect on the decision of dictators, free-form communication is used in our study.

Andreoni et al. (2011) designed a field experiment resembling the lab experiment in Andreoni and Rao (2011). In their study, solicitors for a fundraiser were positioned at one or both

entrances of a supermarket. The solicitors either asked passersby verbally ("please give") or merely stood there. Actively asking strongly increased the share of people donating as well as the average amount donated, but had the additional negative effect that people tried to avoid the solicitor by using a different entrance or exit. The result that actively asking people to donate increases givings has also been found by other authors using observational data on charitable donations (Yörük, 2009; Meer and Rosen, 2011). Related to this, Sanders and Smith (2016) conducted a field experiment in which lawyers asked clients during the process of drawing up a will if they wanted to leave a bequest for a charitable cause. Lawyers were randomly sorted into a "weak ask" treatment and a "strong ask" treatment. In the "weak ask" treatment, clients were simply asked whether they wanted to leave something behind for a charity, whereas in the "strong ask" treatment, clients were additionally told that most clients had made such a charitable bequest (social norm) and that they should think about a cause they felt passionate about (emotional factor). The authors find that in the "strong ask" treatment the proportion of people that decided to leave a bequest to charity increased significantly by 50% compared to the "weak ask" treatment.

Apart from the effect of communication on altruistic behavior in a dictator game, communication has been studied in the experimental literature in other experimental settings that deal with social interactions, such as the public good game, and it has been shown that communication increases cooperation (see, for example, Isaac and Walker, 1988, or Bochet et al., 2006).[4]

Besides communication, there are several factors that affect the decision to give in a dictator game which have been studied in the experimental literature so far. Relevant to our study and the design of our experiment are the findings that decreasing the social distance between the dictator and the receiver leads to more generous giving decisions (Bohnet and Frey, 1999;

[4]Dal Bó and Dal Bó (2014) find that messages which appeal to moral norms and to the social benefit of a high contribution significantly increase contributions in a public good game. In their experiment, messages are not sent by other participants but by the experimenters themselves.

Small and Loewenstein, 2003; Goeree et al., 2010; Hoffman et al., 1996)[5] and increasing the efficiency of a kind act by multiplying the money transferred from the dictator to the receiver by a factor larger than one has a positive effect (Engel, 2011). Also, the demographics of the dictators have an effect in such a way that, for instance, women tend to give more than men, while students tend to give less than non-students (Ibid.).

# 3 Experimental Design and Procedures

In the experiment, we use a modified version of the dictator game. There are two types of players, player A (the dictator) and player B (the receiver). Prior to the start of the experiment, subjects are randomly assigned their role, which they keep for the duration of the experiment. At the beginning of each round, A receives an endowment of 50 points, whereas B receives an endowment of 20 points. Player A makes the binary decision either to keep the endowments unchanged or to decrease her own points by 10 (to 40 points) while increasing player B's points by 20 (to 40 points). Thus, the decision to share the points increases the sum of the points from 70 $(50+20)$ to 80 $(40+40)$. Table 1 illustrates the allocation of points to A and B depending on A's decision.

This simple game is played for multiple rounds. The number of rounds in a session is set

Table 1: Matrix of Endowments and Payoffs

| | A | B | Sum |
|---|---|---|---|
| Endowments | 50 | 20 | 70 |
| Payoffs if A decides not to share | 50 | 20 | 70 |
| Payoffs if A decides to share | 40 | 40 | 80 |

[5]However, decreasing the anonymity of the dictator can also have a negative effect on generosity (Dufwenberg and Muren, 2006).

in such a way that every A interacts with every B exactly once (absolute stranger matching). For example, if there are 32 subjects in a session, i.e. 16 A's and 16 B's, the game is played for 16 rounds. In the end, one of the rounds is randomly drawn. This round determines the payoff of the subjects in the experiment. Eight sessions were conducted at the Laboratory for Experimental Research of the University of Erlangen-Nuremberg (LERN) in June 2016. In six of these sessions, 32 subjects took part, and in the remaining two sessions, 30 subjects took part, which led to 252 subjects and 1,986 sharing decisions in total. Subjects were students, and nearly 80.0% of these studied business and economics. On average, subjects were 23.5 years old and 50.4% of them were male.

In the first round, there is no communication between A and B. Thus, A's decision in the first round can be seen as a baseline decision. In each round after the first one, A receives a written message from the matched subject B before making her decision. B writes his message only once at the beginning of the experiment. B knows that this message will be shown to each subject A, except for the subject A with whom he is matched in the first round. The reason for not letting B write a message every round is that we are interested in the performance of one message encountered by multiple A's, whereas we are not interested in learning effects of B. Subjects are told in the instructions that there are no restrictions regarding the content of the message written by B except that they are not allowed to reveal their identity. The maximum length of a message is limited to 300 characters.

In each session, subjects were randomly assigned a seat. At the beginning, they read the instructions[6] and had to complete a short quiz to ensure that everyone understood the experiment.[7] While the B's wrote their messages, the A's made their decisions for the first round without communication and were then asked whether they could remember a situation in the

[6] An English translation of the originally German instructions can be found in the Appendix.

[7] The control questions can be found in the Appendix.

real world that was similar to their task in the experiment.[8] In the following rounds, the A's decided whether or not to share the points while viewing the message of the matched B on-screen.[9]

Following the experiment, subjects answered a questionnaire and received their payoff in private. Points were converted to Euros at a rate of 5 Points = 1 Euro. Sessions lasted for approximately 45 minutes and subjects earned on average 11.45 Euros, including a show-up fee of 4 Euros. The experiment was computerized with z-Tree (Fischbacher, 2007) and the recruitment process was conducted using ORSEE (Greiner, 2015).

To determine which aspects of the messages are particularly important for the sharing decision of the dictator, the free-form text messages were analyzed and sorted into eight categories after the main experiment took place. Some of the categories are specific to the particular design of the experiment, others are more general. We followed the same procedure as in Andreoni and Rao (2011) and let students from the same subject pool as in the main experiment decide whether a message belonged to one or multiple predetermined categories.[10]

The eight categories are *Friendly Greeting*, *Sum of Points*, *Equity*, *Decency*, *Power / Responsibility*, *Humor*, *Need* and *Random Role*. Messages sorted into the category *Friendly Greeting* are characterized by a particularly friendly or polite greeting. The category *Sum of Points* contains messages in which the receiver argues that sharing points with him will result in an increase in the sum of points, an efficiency gain or a welfare improvement. When the receiver

[8]The reason for this was to make the experimental situation less abstract by thinking about a similar situation from the real world. Most of the situational descriptions were about beggars asking for money or, more generally, about solidarity within a society, a family or another group of people (e.g. friends, roommates).

[9]Screenshots of the decision screens for subjects A with and without communication can be found in the Appendix.

[10]27 subjects took part in the rating session. They were divided into three groups consisting of 9 raters each. Every rater read 42 (41 for the last group) messages and subsequently made her decision. The division into groups was done to reduce the number of messages each subject had to rate because it was important for us that raters took a lot of care and were concentrated when making their decision. Each message could be sorted into one, multiple or no category. Subjects were told that their help was important for our research and that they should take their time with their decisions. They earned 15 Euros for their participation. An English translation of the instructions for the rating session can be found in the Appendix.

tells the dictator that sharing her points will lead to an equal allocation of points, the message is part of the category *Equity*. When the receiver appeals to the dictator to behave fairly or decently, the message is sorted into the category *Decency*. Messages in which the receiver argues that the dictator has the sole decision power and / or the sole responsibility for both payments are sorted into the category *Power / Responsibility*. A particularly humorous message is sorted into the category *Humor*. Messages sorted into the category *Need* are those in which the receiver explains why he needs the money. Finally, when the receiver emphasizes in his message that the role allocation was random, and that the dictator could also have been a receiver or that the dictator should think about how she would like to be treated if she were a receiver, the message is sorted into the category *Random Role*.[11] Table A.1 in the Appendix describes the eight categories in detail and gives one example message for each category.

# 4 Predictions

A neoclassical dictator would neither share her points with B nor react to the message in any way. Depending on her preferences, an inequity averse dictator (Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000) could decide to share her points with B. However, the content and form of the message would have no effect for such an outcome-oriented individual. Contradicting these theories, previous studies have already shown that, in general, a message does have an effect on the dictator's decision to share (Andreoni and Rao, 2011; Mohlin and Johannesson, 2008; Langenbach, 2016). In order to develop predictions regarding dictators' systematic

[11] Regarding the categories used by Andreoni and Rao (2011), we adopted the categories *Friendly Greeting* and *Need*. However, in our study, a *friendly greeting* is defined as being more formal than it is in the study by Andreoni and Rao, in which it is defined as a "greeting usually used amongst friends." The category "Fairness" used in their study is divided into two categories, *Equity* and *Decency*. What Andreoni and Rao called "Acknowledge Power" is called *Power / Responsibility* in our study to emphasize that receivers did not only write about the power of the dictator but also about the dictator's specific responsibility for both payoffs. There were hardly any messages using "Flattery." Hence, this category was not used in our study.

reaction to the content and form of a message, behavioral models such as the intention-based model of reciprocity (Rabin, 1993) are a good starting point.

## 4.1 Full Sample

A dictator who behaves reciprocally (Rabin, 1993) may, for one thing, value a humorous message, a message which makes her smile or one which makes her feel good and, hence, is more inclined to share her endowment with the author of such a message. Thus, a message that has the potential to contribute to the dictator's well-being (e.g. a message that starts with a friendly greeting, is humorous or contains a smiley) has a higher probability of its request being granted by the dictator. Such a dictator may also appreciate a message which shows that the receiver put considerable effort into it. In other words, since the receiver has put effort into writing the message, the dictator reciprocates and shares her points with B. On the one hand, this can be done by writing a longer message with few or no spelling mistakes in it. Therefore, we expect that longer messages and messages that contain fewer mistakes will have a higher probability of success. On the other hand, a creative message, e.g. a humorous message, shows effort on the part of the receiver as well. Of course, this effect would also work the other way around. A message showing lack of effort by being shorter or containing more spelling mistakes, for example, would have a lower chance of success.

**Prediction 1:** Messages with a *friendly greeting*, which are very *humorous*, which contain at least one *smiley* or which are relatively *long* affect the sharing decision positively. Messages which contain a lot of *spelling mistakes* affect the sharing decision negatively.

As mentioned in the literature overview in Section 2, feelings of empathy towards the person in need may be the main driving force for altruistic actions. This relationship is also called the empathy-altruism hypothesis (Batson, 1991; Andreoni and Rao, 2011; Andreoni et al., 2011).

Batson (1991) argues that both the "magnitude of the perceived need" as well as the "strength of the attachment" to the other person increase the empathetic concern for this person. We hypothesize that a message which contains reasons why the author needs the money serves as an "empathetic stimulus" (Andreoni et al., 2011) since it makes a need salient and also heightens the attachment to the other person by letting the dictator adopt the perspective of the receiver. Furthermore, by increasing the empathic concern, such a message raises the probability of an altruistic act.

**Prediction 2:** Messages which fall into the category *Need*, i.e. messages that give reasons for why the money is needed, have a higher probability of success.

While increasing the feeling of empathy towards the receiver is one way how the content of the message potentially influences the dictator's decision to share, increasing the social pressure for the dictator to behave according to social norms could be another way. It has been shown that social pressure has a strong impact on generosity in the area of charitable donations both in field experiments (DellaVigna et al., 2012; Andreoni et al., 2011) as well as in field data (Bekkers and Wiepking, 2011; de Wit and Bekkers, 2016). People donate more if social pressure increases.

Messages and their content can affect social pressure in two ways. On the one hand, there is the explicit variant in which social norms are made more salient by appealing to the other party to behave fairly and just. On the other hand, social pressure for the dictator can be increased in a more subtle way, which is the implicit variant. In particular, mentioning the power relationship between the dictator and the receiver and the dictator's responsibility for the outcome of both parties could increase the social pressure without being strongly demanding. For example, Brañas-Garza (2007) show in a dictator game that including the sentence "Note that he relies on you." at the bottom of the instructions increases givings significantly. Furthermore, the word "thanks" in a message which is mostly used in the end in a context such

as "thanks in advance" may affect social pressure in the same subtle way. Thus, we expect that dictators receiving messages that increase the social pressure will more often share their points with the particular supplicant.

**Prediction 3:** Messages appealing to *decency*, emphasizing the *power and responsibility* relationship or containing the word "*thanks*" will have a higher probability of success.

## 4.2 Gender differences

Women and men may react differently to the content and form of messages. First of all, there is evidence that women react more strongly to social cues than men (Croson and Gneezy, 2009; Eagly, 1983). Moreover, Meer and Rosen (2011) analyze data of university alumnus donations and find that the effect of a personal solicitation is stronger for women than for men. Hence, we expect that women will react more strongly to the message by (a) having a higher variance than men in their sharing decision when communication is present and (b) increasing their generosity more than men when seeing a message compared to the baseline round in which there is no message.

**Prediction 4:** (a) The average variance in the sharing decisions with communication will be higher for female dictators than for male dictators. (b) The difference between the proportion of dictators sharing their points in the baseline round and the average proportion of dictators sharing their points in the following rounds will be higher for female dictators than for male dictators.

In a dictator game, Andreoni and Vesterlund (2001) vary the budget and the relative price for altruism. The relative price of altruism is the efficiency of a donation, i.e. how much the beneficiary receives relative to what the donor has to give up. They find that men react more strongly to the efficiency of a donation, i.e. they behave more altruistically than women when

altruism is relatively "cheap" and less altruistically than women when altruism is relatively "expensive." This gender difference with respect to the relative price of a donation has also been found in field data on charitable donations (Andreoni et al., 2003). The author of a message can highlight this aspect and make it more salient by arguing that sharing the points with the receiver increases the total sum of points and is, hence, welfare enhancing. We expect that such a message will increase the likelihood of the dictator sharing the points with the receiver when the dictator is a man. The effect may also be positive for women, but it would be weaker than for men.

**Prediction 5:** Messages in which the author argues that giving will increase the *sum of points* will have a positive effect on the likelihood of success for male dictators. The effect will be smaller or even nonexistent for female dictators.

In the same study, Andreoni and Vesterlund (2001) show that for female dictators equity in the payoffs is more important than it is for male dictators. Following the same line of argumentation as above, we expect that a message which highlights the aspect that sharing points leads to an equal allocation of points will increase the probability of a generous decision by a female dictator. The effect may also be positive for men, but it would be weaker than for women.

**Prediction 6:** Messages in which the receiver argues with the *equity* of payoffs due to sharing the points with him will have a positive effect on the success probability for female dictators. The effect will be smaller or even nonexistent for male dictators.

Our last prediction is about gender differences and the social pressure to give. Psychological research (Eagly, 2009; Babcock and Laschever, 2003) has shown that gender-specific stereotypes exist and that these stereotypes work not only by describing how men and women usually behave (descriptive), but also by claiming how men and women should behave (prescriptive). Hence, such a gender-specific role or stereotype serves as a social norm and men and women

are expected to behave accordingly, thereby creating social pressure to do so (Eagly, 2009; Babcock and Laschever, 2003; de Wit and Bekkers, 2016). Since women are assumed to be more caring, friendly and "other-oriented" (Deaux and Major, 1987; Babcock and Laschever, 2003; Eagly, 2009), women experience a higher social pressure to act in such a way, i.e. they are expected to be more generous and help the person in need.[12] Furthermore, they not only experience a greater pressure to give, they may also react more strongly to a given level of social pressure (Croson and Gneezy, 2009; Eagly, 1983). Following this argument, we hypothesize that messages that increase the social pressure either in a straightforward way (decency) or in a more subtle way (power and responsibility or containing the word "thanks") will increase the chance for a successful request more strongly if the dictator is a woman.

**Prediction 7:** The increase in the success probability of messages appealing to *decency*, emphasizing the *power and responsibility* relationship or containing the word "*thanks*" will be higher for female dictators than for male dictators.

# 5 Results

## 5.1 Descriptive Statistics about the Sharing Decision

Depending on the number of subjects in a session, each of the 126 subjects A decided 15 or 16 times over the allocation of points between subjects A and B. In the following, the observations belonging to the messages of three subjects B are excluded from the analysis,[13] which

[12]However, for field data from the Netherlands, de Wit and Bekkers (2016) find no evidence that social pressure can explain the different behavior of men and woman in donations.

[13]In the case of one subject B, there was a computer error which led to two messages being sent by this subject. We cannot be sure which message appeared on As' screen when deciding about the allocation of points. Therefore, the observations associated with this subject B had to be excluded. Furthermore, two subjects B wrote messages containing a deal offer in which they told the opposing party that they could meet after the experiment and exchange the welfare gains from sharing. The observations associated with these

leads to 1,941 allocation decisions, 126 without communication (from round 1) and 1,815 with communication. Of all the 126 subjects A, 21 subjects (16.7%) always shared their points with B, 24 subjects (19.0%) never shared their points with B and 81 subjects (64.3%) varied their decisions to share.

In round 1, which is the baseline decision without communication, subjects A decided to share the points in 31.0% of the cases, while after round 1 they shared their points in 47.7% of the cases. The difference between the sharing decision without and the average sharing decision with communication is highly significant for the whole sample (Wilcoxon Signed Rank Test $z = -5.03$, $p < 0.0001$), as well as only for male A's ($z = -3.33$, $p = 0.0009$) and only for female A's ($z = -3.77$, $p = 0.0002$). This finding suggests that communication as such has a positive effect on the decision to share which is in line with the literature (Andreoni and Rao, 2011; Mohlin and Johannesson, 2008; Langenbach, 2016). However, as this is only a within-subject treatment comparison, the result could potentially also arise due to an experimenter demand effect (Zizzo, 2010), i.e. when subjects are under the impression that they have to change their behavior due to the message now appearing on their screen. Over all rounds, male A's decided to share their points slightly more often than female A's (50.6% compared to 42.7%).[14] However, this difference between male and female dictators is not statistically significant (Wilcoxon Rank Sum Test $z = -1.17$, $p = 0.2407$). There is a weak positive time trend, as can be seen from Figure A.1 in the Appendix, i.e. dictators tend to be more generous in later rounds.

messages are also excluded.

[14] In general, results from dictator games suggest that women behave more altruistically than men (Engel, 2011). In our setting, however, an altruistic act is relatively "cheap" or "efficient," since sharing the points costs only 2 Euros while increasing the receiver's payoff by 4 Euros, which has been shown to increase the likelihood of altruistic acts more for male dictators than for female dictators (Andreoni and Vesterlund, 2001).

## 5.2 Message Analysis

In the following, we analyze 123 messages written by subjects B. Table 2 shows characteristics of these messages for the whole sample, as well as for male and female B's separately. On

Table 2: Objective Characteristics of Messages

| | | Gender of writer | |
|---|---|---|---|
| Variables | Full Sample | Male | Female |
| Length (in characters) | 219 | 216 | 222 |
| Number of spelling mistakes | 1.59 | 1.53 | 1.64 |
| *Message contains (dummy variables):* | | | |
| Smileys | 0.65 | 0.61 | 0.69 |
| The word "Please" | 0.19 | 0.25 | 0.12 |
| The word "Thanks" | 0.23 | 0.28 | 0.17 |
| Number of messages | 123 | 64 | 59 |

*Values in the table are averages for the full sample of messages, as well as for messages written by only male or female B's.*

average, messages were 219 characters *long* and included 1.59 *spelling mistakes*. Of these, 65% contained at least one *smiley*, 19% contained the word "*please*"[15] and 23% contained the word "*thanks*."[16] There are no significant gender differences in these objective message characteristics except for the use of the word "*please*," which is used more frequently by male receivers; this difference is only significant at a 10% significance level (Wilcoxon Rank Sum Test $z = -1.859$, $p = 0.0630$).

As explained in detail in Section 3, the content of the messages was analyzed by letting 9 independent subjects decide for every message whether it belonged to none, one or multiple categories predetermined by us. For the following analysis the average rating is used, i.e. if, for example, 8 of the 9 raters have decided that a message belongs in the category *Need*, this

[15]For "*please*," different versions were counted ("bitte," "bitteschön," "bitten," "please").

[16]For "*thanks*," different versions were counted ("danke," "dankeschön," "thanks," "thank you," "merci").

Table 3: Categories of Messages Resulting from the Rating Session

| | | Gender of writer | |
|---|---|---|---|
| Variables | Full Sample | Male | Female |
| Equity | 0.54 | 0.56 | 0.52 |
| Decency | 0.50 | 0.47 | 0.53 |
| Friendly Greeting | 0.42 | 0.41 | 0.42 |
| Power / Responsibility | 0.35 | 0.34 | 0.35 |
| Sum of Points | 0.32 | 0.37 | 0.26 |
| Humor | 0.31 | 0.30 | 0.32 |
| Need | 0.14 | 0.11 | 0.17 |
| Random Role | 0.14 | 0.15 | 0.12 |
| Number of messages | 123 | 64 | 59 |

*Values in the table are averages for the full sample of messages, as well as for messages written by only male or female B's.*

message will have a rating of 8/9 in the category *Need*. Table 3 summarizes the results of the rating session. An average message has a rating of 0.54 in the category *Equity*, which is the most frequent category. Following this category in order of frequency are *Decency*, *Friendly Greeting*, *Power and Responsibility*, *Sum of Points*, *Humor*, *Need* and *Random Role*, which is mentioned the least often.[17] Men appear to mention the increase in the *sum of points* more often, while women tend to appeal to *decent* behavior and address their particular *need* more often. However, these differences are not statistically significant.[18] To sum up, there does not seem to be a considerable difference between the writing behaviors of male and female receivers.

[17]Table A.2 in the Appendix shows the cross-correlation of all the message characteristics and categories. The highest (positive) correlation is between the three categories *Equity*, *Decency*, and *Power and Responsibility*. A factor analysis did not yield any additional insights.

[18]Wilcoxon Rank Sum Test for *Sum of Points* : $z = -1.433$, $p = 0.1517$; Wilcoxon Rank Sum Test for *Decency*: $z = 1.504$, $p = 0.1325$; Wilcoxon Rank Sum Test for *Need*: $z = 0.666$, $p = 0.5055$.

Table 4: Logit Regression Results for Three Models for the Full Sample

| | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | share | | share | | share | |
| VARIABLES | coef | se | coef | se | coef | se |
| *Message Categories:* | | | | | | |
| Equity | 0.144 | (0.144) | -0.042 | (0.152) | -0.065 | (0.202) |
| Decency | -0.013 | (0.177) | 0.079 | (0.177) | 0.093 | (0.247) |
| Friendly Greeting | 0.225** | (0.093) | 0.046 | (0.101) | 0.098 | (0.134) |
| Power/Responsibility | 0.534** | (0.245) | 0.416* | (0.243) | 0.674** | (0.327) |
| Sum of Points | 0.345** | (0.141) | 0.179 | (0.135) | 0.261 | (0.178) |
| Humor | 0.780*** | (0.126) | 0.491*** | (0.126) | 0.707*** | (0.168) |
| Need | 0.397** | (0.156) | 0.473*** | (0.161) | 0.627*** | (0.212) |
| Random Role | 0.369** | (0.166) | 0.239 | (0.177) | 0.180 | (0.235) |
| *Message Characteristics:* | | | | | | |
| Length | | | 0.002*** | (0.001) | 0.003*** | (0.001) |
| # Spelling Mistakes | | | -0.058* | (0.030) | -0.079** | (0.039) |
| Smileys | | | 0.339*** | (0.083) | 0.488*** | (0.113) |
| Please | | | -0.091 | (0.092) | -0.104 | (0.124) |
| Thanks | | | 0.159* | (0.093) | 0.211* | (0.122) |
| *Characteristics Dictator A:* | | | | | | |
| Baseline Share | | | | | 2.539*** | (0.359) |
| Male | | | | | 0.391 | (0.294) |
| Age | | | | | -0.022 | (0.050) |
| Business/Economics | | | | | 0.680* | (0.404) |
| Empathy | | | | | 1.403*** | (0.376) |
| Period | | | | | 0.030*** | (0.009) |
| Constant | -1.265*** | (0.410) | -1.510*** | (0.429) | -7.378*** | (1.517) |
| Observations | 1,815 | | 1,815 | | 1,815 | |

*Note:* The dependent variable in all three regressions is *share*, which takes a value of 1 if A decided to share the points. Robust standard errors (clustered on the level of subjects A) in parentheses in the following column. All regressions include session dummies.
* significant at 10%; ** significant at 5%; *** significant at 1%.

## 5.3 Regression Results

Table 4 shows the results of a logistic regression[19] in which the dependent variable is *share*, a variable that takes the value of 1 if the dictator decided to share the points and 0 otherwise. The first model in columns (1) and (2) includes only the category ratings of a message as explanatory variables. The second model in columns (3) and (4) adds the objective characteristics of a message as explanatory variables. A Wald Test rejects the joint hypothesis that the category variables for the first model (Wald-statistic with 8 restrictions: $\chi^2 = 56.84$, $p < 0.0001$) as well as the subjective category variables and objective characteristics variables for the second model (Wald-statistic with 13 restrictions: $\chi^2 = 68.21$, $p < 0.0001$) are simultaneously equal to 0, i.e. the explanatory variables in the first and the second model do have predictive power. Hence, the content and form of a message influence the decision to share.

Including the objective characteristics of a message as explanatory variables changes the coefficients for the category variables. Especially controlling for the length of a message has an impact, since messages scoring high in the categories *Sum of Points*, *Equity*, *Random Role*, *Power / Responsibility* and also - to a lesser extent - *Decency* and *Friendly Greeting* are on average relatively long messages, as can be seen from the cross-correlation Table A.2 in the Appendix. The length of a message, in turn, has a positive impact on the probability of a successful request. Controlling for the use of *smileys* in a message, which has a positive impact on the likelihood of sharing, increases the coefficient for *Need* since messages scoring high in this category include on average fewer *smileys*. On the other hand, messages in the category *Humor* use a lot of *smileys* and, hence, controlling for *smileys* decreases the estimated effect for such a message.

In the third model in columns (5) and (6) of Table 4, characteristics of dictators A are in-

[19] Using a Probit model or an OLS model does not yield essentially different results. Table A.4 in the Appendix shows regression results for a fixed effects model in which subjects A define the panel. The results are mostly robust to the model used here.

cluded as explanatory variables. The predicted effects of the explanatory variables regarding the content and form of the messages change only slightly compared to the second model. Unless otherwise stated, the third model is used in the following discussion of the results.

Regarding prediction 1, which states that dictators behave reciprocally and reward messages that show effort (or creativity), the regression results confirm at least part of this prediction strongly. The category *Humor* exhibits a positive and highly significant effect on the willingness to share - one of the largest effects of all the categories. To provide an idea of the magnitude of the effect, Figure 1 displays the average marginal effects of all eight categories on the probability of success. The model predicts that, on average, a message with a rating of

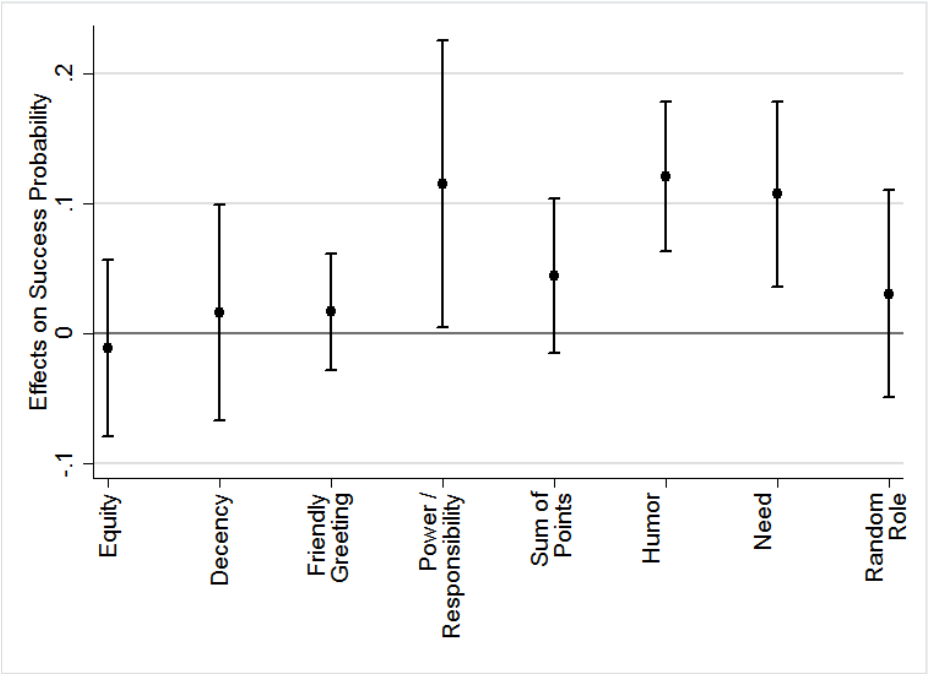



Figure 1: Average Marginal Effects for the Full Sample
*Note: The figure shows point estimates as well as 95% confidence intervals.*

1 in the category *Humor* has a success probability that is roughly 12 percentage points higher than a message with a rating of 0 in this category. Looking now at *smileys* in a message, Table 4 shows that a *smiley* has a positive and highly significant effect on the probability that a dictator shares her points. This effect is estimated to be above 8 percentage points. In line

with the prediction, longer messages affect the sharing decision positively.[20] The effect is also highly significant. Additionally, *spelling mistakes* in a message are punished by the dictator by reducing her willingness to share (significant at a 5% level). These findings support prediction 1. However, we do not find a positive effect that is significantly different from 0 for the category *Friendly Greeting* - at least as long as we control for the objective characteristics of a message - which is not in line with our prediction.

**Result 1:** Messages with a high rating in the category *Humor*, messages which contain at least one *smiley* and messages which are relatively *long* affect the sharing decision positively, while messages containing *spelling mistakes* affect the decision negatively. We do not find significant evidence for a positive effect of a *friendly greeting*.

As for prediction 2, which states that a message containing reasons why the additional money is needed heightens the empathetic concern and, in turn, increases the probability of a kind action, our results seem to support this prediction. There is clear evidence that messages mentioning the specific need of the receiver result in a higher chance of the dictator sharing her points with the particular receiver. In fact, the model predicts an increase in the success likelihood by 10.7 percentage points for a message with a rating of 1 in the category *Need*, compared to a message with a 0 in this category, as can be seen in Figure 1. This positive effect is highly significant.

**Result 2:** Messages belonging to the category *Need* have a higher probability of success.

For prediction 3, that social pressure affects the dictator's decision to give, our data shows a mixed picture. On the one hand, the category *Decency*, which contains messages that remind the dictator explicitly of social norms and to behave according to them, has a very small positive effect on the sharing decision, which is far from being significantly different from 0. On the other hand, messages that fall in the *Power and Responsibility* category, thereby in-

[20] The coefficient is relatively small because the length is measured in characters.

creasing social pressure in a more subtle way, affect the decision to share much more strongly. This effect is large - an increase in the success probability of 11.5 percentage points for a message with a rating of 1 compared to a rating of 0 in this category is predicted by the model - and statistically significant. Messages containing the word "*thanks*" seem to have a higher success chance, which would support our prediction. This effect, however, is only statistically significant at the 10% level ($p = 0.083$).

**Result 3:** Messages emphasizing the *power and responsibility* relationship have a higher probability of success. Using the word "*thanks*" in a message seems to have a positive effect as well. There is no significant effect of messages appealing to *decency* on a dictator's willingness to share.

We find no statistically significant effects for the categories *Sum of Points*, *Equity* and *Random Role* on the likelihood that the dictator will share her points. For *Sum of Points* ($p = 0.143$) and *Random Role* ($p = 0.444$), the estimated effects are positive but only statistically significant at a 5% significance level when not controlling for the observable characteristics of a message - in particular, the length of a message. For *Equity*, however, the estimated effect is even negative, while being very close to 0. Although every child is taught that the word "*please*" is mandatory or at least expected when asking someone a favor in a polite way, surprisingly, the model predicts that using "*please*" in a message does not improve the dictator's willingness to act kindly.

Considering the characteristics of the dictator, our data confirms that dictators who shared their points in the baseline round without communication are clearly more inclined to share their points also in the later rounds when communication is present. Male dictators and dictators who study business and economics seem to be more generous; however, this is not statistically significant for the gender of the dictator and only significant at a 10% level for the dictator's field of study. Part of the post-experimental questionnaire was an Interpersonal

Reactivity Index[21] (Davis, 1983), which serves as an individual measure of empathy. This empathy measure shows the expected effect: Subjects who score higher on this empathy measure are more willing to share. Furthermore, the willingness to share increases in later rounds.[22]

## 5.4 Different Behavior of Male and Female Dictators

Regarding prediction 4, we find that the average variance in the sharing decision with communication is slightly higher for female A's than for male A's ($\bar{\sigma}^2_{Female} = 0.1165 > 0.1032 = \bar{\sigma}^2_{Male}$). However, this difference is far from being statistically significant (Wilcoxon Rank Sum Test $z = 0.666$, $p = 0.5055$). On average, communication increases the proportion of dictators that share their points by 17.3 percentage points if the dictator is a woman, and by 16.1 percentage points if the dictator is a man.[23] Similarly to the case above, this difference is not statistically significant (Wilcoxon Rank Sum Test $z = 0.287$, $p = 0.7739$).

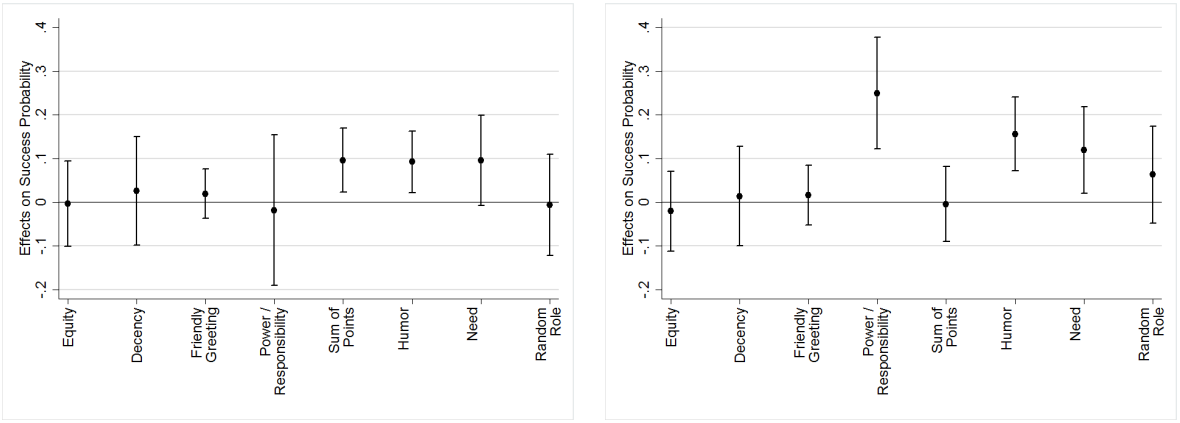
**Result 4:** We do not find statistically significant evidence in our setting that women react more strongly to this particular form of a social cue than men. Neither do women display a higher variance in their sharing decision than men, nor do women increase their willingness to share with vs. without communication more than men.

However, men and women do react differently to particular aspects of the message, as hypothesized in the predictions section. Table A.3 in the Appendix shows the results of a logistic regression using the same model as before (third model in Table 4), once only for male dic-

[21] The Interpersonal Reactivity Index consists of 28 items on a 5-point Likert scale. It is calculated by taking the average of the responses (9 out of 28 items are scored in reverse order). The Interpersonal Reactivity Index has a scale reliability coefficient (Cronbach's $\alpha$) of 0.846.

[22] Since every message is shown to exactly one A in each round in random order, the positive time trend is not a problem when analyzing the effect of these messages.

[23] For every A, the difference between his or her average decision with communication and his or her decision without communication is calculated. Then, averages of this difference for male and female A's are calculated and compared.




(a) Men (b) Women

Figure 2: Average Marginal Effects for Male and Female Dictators
*Note: The figures show point estimates as well as 95% confidence intervals.*

tators in column (1) and once only for female dictators in column (2). Figure 2 displays the average marginal effects for the eight categories for male as well as female dictators resulting from the logistic regression in Table A.3.

Prediction 5 stated that men react more strongly to arguments concerning the efficiency of sharing the points. Our results support this prediction. For male dictators, the effect on the success probability is positive, statistically significant and relatively large; an increase of 9.6 percentage points is predicted by the model for a message that has a rating of 1 in the category *Sum of Points* compared to having a rating of 0 in that category. For female dictators, on the other hand, the effect is negative but not statistically different from 0.

**Result 5:** Messages which argue that sharing points will increase the *sum of points* have a positive effect on the willingness to share only for male dictators.

Prediction 6 was about gender-specific reactions to an equity argument, such that women are more inclined to share their points when the receiver argues that this will lead to equal payments. We do not find any evidence in favor of this prediction. The point estimates for the effect of *Equity* on the probability of success are negative for both sexes and far from being statistically different from 0 ($p = 0.946$ for men, $p = 0.658$ for women).

**Result 6:** We do not find a significant gender difference in the reaction to messages in which the writer argues on the basis of the *equity* of payoffs that will result.

Concerning prediction 7, that women react more strongly to social pressure, the results are similar to the case of social pressure for the full sample. On the one hand, appealing to *decency*, an explicit way to make social norms more salient and, thereby, increasing social pressure, has no significant effect on the sharing decision for both sexes. On the other hand, we do find clear differences in the behaviors of female and male dictators when we look at more subtle forms of increasing social pressure, i.e. mentioning the *power and responsibility* relationship and using the word "*thanks*" in the message. For both of these variables, the effects are very close to 0 for male dictators ($p = 0.834$ for *Power and Responsibility*, $p = 0.764$ for "*thanks*") while being positive for female dictators. Particularly for the category *Power and Responsibility*, the effect is very large; the model predicts an increase in the success probability of nearly 25 percentage points if a message has a rating of 1 in this category, compared to a rating of 0 for female dictators. Both of these effects are statistically significant ($p < 0.001$ for *Power and Responsibility*, $p = 0.018$ for "*thanks*"). Hence, the statistically significant effects of the category *Power and Responsibility* and of the word "*thanks*" on the willingness to share in the full sample are solely driven by female dictators.

**Result 7:** Messages which emphasize the *power and responsibility* relationship or which contain the word "*thanks*" have a positive effect on the willingness to share only for female dictators. There is no significant gender difference in the reaction to messages appealing to *decency*.

## 5.5 Different Behavior of Dictators Depending on Their Baseline Decision

Table A.3 in the Appendix additionally displays regression results divided according to dictators who did or did not share their points in the baseline round (columns (3) and (4)). A dictator who shared her points in the baseline round without communication is already inclined to share her points with the receiver and has to be actively dissuaded from sharing by the message. A dictator who did not share her points in the baseline round without communication is less inclined to share her points and, thus, has to be actively convinced to share by the message. It may be that different aspects of a message can either dissuade a dictator from sharing or convince a dictator to share.

The results indicate that an argument concerning the *sum of points* is only successful when trying to convince a dictator to behave kindly who did not share her points without communication. There do not seem to be other substantial differences in the behavior of dictators who either shared or did not share their points in the baseline round.

# 6 Summary and Discussion

First of all, the content and form of the receiver's request influence the dictator's decision to give. This result is additionally supported by statements from dictators in the post-experimental questionnaire in which they were asked how they came to their decision. Ten dictators mentioned that even though they had planned to either never share their points or always share their points, they changed their minds after reading particularly "good" or "bad" messages.

When asked in the questionnaire about what influenced their decision, dictators most com-

monly gave answers related to our prediction 1, i.e. to what we argue is a reciprocity effect. They said they were more inclined to share their points when a message was nice and friendly so that the writer seemed more likeable (41 mentions), when the message was creative (23 mentions), funny and humorous (21 mentions), thoughtful and showed effort (12 mentions) or contained few mistakes (6 mentions). This is also what we find in the data. Messages that show that the writer put effort into it by being creative and writing a funny and humorous message or by writing a long message without mistakes have a higher chance of success. Although not requiring much effort, including smileys in a message seems to make the message friendlier and the writer more likeable. Hence, the evidence suggests that there are dictators who behave reciprocally in such a way that they are more likely to do something for the receiver, i.e. sharing their points with him, after reading a message mainly characterized by friendliness, creativity and effort.

We can only speculate as to why a friendly greeting has no effect on the decision of a dictator. One dictator wrote in the questionnaire that she does not like a greeting that is too formal or polite and prefers to receive a rather casual greeting. This could be an explanation for this result; an explanation that would, however, be specific to this particular setting and to this particular subject group. The same argument may be valid for our result that the use of the word "please" has no positive effect. In a different setting or with a subject group consisting not only of students, the effect may be positive. However, messages containing the word "please" may also be too demanding on average, a trait that subjects did not like in the messages, according to statements in the questionnaire (7 mentions).

The fact that explaining why the money is needed has a sizeable positive effect suggests that feelings of empathy which are stimulated by personal attachment to the person in need and knowledge about the specific need are important for altruistic behavior. However, while explaining the particular need has a positive effect on generosity, a message inducing pity or showing obvious signs of begging was mentioned most often in the questionnaire as a reason

for not sharing the points with a receiver (14 mentions).

In the case of social pressure, there appears to be a clear difference in the reaction of the dictators between explicit forms of social pressure on the one hand and implicit forms on the other. Messages which increase social pressure in a very subtle and implicit way without being demanding have a positive effect on the dictator's decision to share. This effect is driven solely by female dictators. However, increasing social pressure explicitly by prescribing to the other party how to behave has no significant effect at all and there is no gender difference in this case. In line with this result, several dictators mentioned in the questionnaire that they did not like messages which were too demanding or which told them explicitly how they should behave or what they should do (9 mentions). In this laboratory setting, it is relatively easy to avoid such an explicit form of social pressure or to even punish it due to the anonymity and since clicking twice is enough to let a message disappear. Hence, it is likely that the effect of explicit and direct social pressure is different in settings in which avoidance is more difficult, as it is the case in most real-life interactions (DellaVigna et al., 2012; Andreoni et al., 2011).

Arguing for sharing the points to result in equal payoffs has no significant effect on the decision to share, neither for male dictators nor for female dictators. A reason for this finding may be that in our setting it is too obvious that sharing leads to equal payoffs and, thus, it is not possible for a receiver to make this aspect more salient by mentioning it in his message.

Our results indicate a clear difference when faced with an argument mentioning the increase in total points or the efficiency of sharing the points. Men react positively to such an argument, while women show no reaction. Due to the fact that our subject pool mainly consists of business and economics students, it could very well be that the effect of the efficiency argument is stronger in this case than it would be in a sample which is more representative of the general population (Engelmann and Strobel, 2006; Fehr et al., 2006). However, since the proportion of business and economics students is similarly high for male and female A's (78 % of the female A's and 82 % of the male A's study business and economics), the different reactions to

the efficiency argument cannot be explained by our particular subject pool. It is also possible that the appeal for equity would work better if the subject pool consisted of fewer business and economics students (Engelmann and Strobel, 2006; Fehr et al., 2006).

# 7 Concluding Remarks

In this study, we implemented free-form written communication in a modified dictator game and analyzed its effect on the dictators' decision to share. The content as well as the form of a message have a clear effect on the dictator's decision. Humorous and friendly messages, as well as messages that show that the author exerted more effort, lead to reciprocal behavior from the dictator, i.e. she is more willing to share. Mentioning the receiver's specific need also increases generosity. Only men react positively to an efficiency argument, whereas creating subtle social pressure increases sharing only if the dictator is female.

Our research supports the results of Andreoni and Rao (2011), Mohlin and Johannesson (2008) and Langenbach (2016) that communication has a positive effect on dictators' willingness to act kindly. Furthermore and most importantly, we fill the gap in analyzing systematic reactions of dictators in response to certain aspects of written communication, which, to the best of our knowledge, has not been done before in this level of detail. Additionally, our research contributes to the current research on gender differences in the area of altruism (Andreoni and Vesterlund, 2001; Croson and Gneezy, 2009; de Wit and Bekkers, 2016).

Concerning research on altruism, our results indicate that several factors are vital for altruistic behavior. First of all, if people feel like they get something in return for their generosity - and it may be just something to smile about - or if people feel like the receiver at least tried their best, they are willing to help. Secondly, empathetic feelings towards the person in need

are also important for altruism. Finally, social pressure has an effect, even in the artificial and anonymous situation of a laboratory experiment. However, this effect is driven solely by women, presumably because social norms expect women to be kind and caring. It would be interesting to study whether a similar gender difference can be found for explicit forms of social pressure in real-life settings in which it is harder to avoid or punish social pressure.

Primarily, our results are relevant for numerous everyday life situations in which one party asks another one a favor. Additionally, such diverse fields as charity work, negotiations and marketing might benefit from our findings. Our setting differs considerably from the negotiation setting, in which usually both parties attempt to benefit from an agreement, whereas in our setting one party may help the other party without a monetary benefit for herself. However, since negotiating is about convincing the other party with specific arguments, it is likely that at least some of our findings are transferable to this area. The same may hold for marketing, since marketing is likewise to a large extent about convincing somebody (i.e. a customer) to do something (i.e. to buy the product). Thus, our findings regarding arguments that convince dictators to be more generous may be interesting for negotiations and marketing as well.

Especially for charity work, it is important to distinguish between content- and relationship-effects when using our results, since the person who asks a favor is not the person who benefits from the favor in that case. It is very likely that relationship-specific effects, which result from certain aspects of communication that are targeted at the direct relationship between potential beneficiaries and benefactors, are mitigated if an intermediary tries to convince a potential benefactor instead of the potential beneficiary of the favor herself. Future research may study the effect of communication in a setting in which an intermediary asks a favor and analyze any differences from our findings. Other potentially fruitful areas for future research include testing the external validity of our findings by conducting field experiments which further analyze the effect of communication, e.g. in the domain of charitable giving. Furthermore,

our subject pool consists only of students, most of whom study business and economics, which makes it a rather specific subject pool. Hence, the generalizability of our results should also be tested in future studies.

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# A Appendix

## A.1 Supplementary Tables and Figures

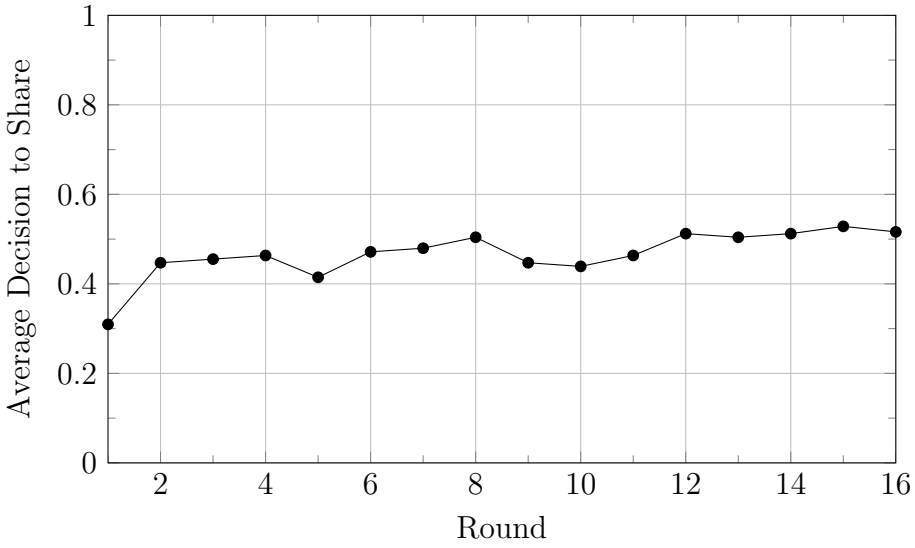


Figure A.1: Average Decision to Share per Round

Table A.1: Message Categories

| Category | Description | Example Message (translated from German) |
|---|---|---|
| Equity | Changing the score of points leads to an equal distribution of points. | "...and accomplish identical payments for both of us. Please reduce your endowment by 10 points, so that 20 points are added to my endowment and that there is equity in payments. ..." |
| Decency | Appealing to A to behave fair and decent | "Please be fair and distribute justly,... . Please do not be selfish and inconsiderate, since you would harm me that way and leave with a bad conscience in the end." |
| Friendly Greeting | Friendly or polite address | "Hello dear participant A, ..." |
| Power/ Responsi-bility | A has the sole decision power but also the sole responsibility for both payments. | "I cannot overrule your decision and maybe not even influence it. ... THE CHOICE IS YOURS :)" |
| Sum of Points | B argues with an efficiency gain, i.e. an increase in the sum of points. | "... Please share your points with me! That way, the overall welfare will increase. You will receive a little less, in return I get a little more. In total, this would put the two of us in a better position. ..." |
| Humor | The message is particularly humorous | "Two economists are on a quest for personal happiness (i.e. the maximum utility). Let us do it: Let's increase the overall welfare! In favor of shifting the aggregated budget line, towards higher indifference curves, until we reach the heaven of the best possible Nash equilibrium." |
| Need | B explains why he needs the points / money | "Hi. On the weekend, I would like to visit my girlfriend. In order to do this, I need some money to buy a bus ticket. So please be a bit fair and share your points with me. Do it for the sake of Love. :)" |
| Random Role | B mentions the random allocation of roles and / or how A would feel being a B. | "...Perhaps you keep in mind that you could find yourself in my position and you would surely be glad about a friendly A." |

Table A.2: Cross-correlation Table of Message Characteristics

| Variables | Eq | D | FG | P/R | SoP | H | N | RR | L | SM | S | Pl | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Equity (Eq) | 1.000 | | | | | | | | | | | | |
| Decency (D) | 0.604 | 1.000 | | | | | | | | | | | |
| Friendly Greeting (FG) | -0.006 | 0.090 | 1.000 | | | | | | | | | | |
| Power / Responsibility (P/R) | 0.580 | 0.572 | 0.105 | 1.000 | | | | | | | | | |
| Sum of Points (SoP) | 0.366 | 0.225 | -0.076 | 0.408 | 1.000 | | | | | | | | |
| Humor (H) | -0.322 | -0.318 | -0.013 | -0.360 | -0.235 | 1.000 | | | | | | | |
| Need (N) | -0.069 | -0.024 | 0.056 | -0.058 | -0.151 | 0.149 | 1.000 | | | | | | |
| Random Role (RR) | 0.244 | 0.275 | 0.195 | 0.316 | 0.103 | -0.048 | -0.090 | 1.000 | | | | | |
| Length (L) | 0.371 | 0.259 | 0.186 | 0.338 | 0.422 | 0.090 | 0.017 | 0.340 | 1.000 | | | | |
| # Spelling Mistakes (SM) | 0.063 | -0.043 | -0.032 | -0.105 | -0.029 | 0.031 | 0.037 | 0.179 | 0.121 | 1.000 | | | |
| Smileys (S) | 0.014 | -0.120 | 0.077 | -0.097 | -0.117 | 0.224 | -0.083 | 0.039 | -0.068 | 0.332 | 1.000 | | |
| Please (Pl) | 0.153 | 0.282 | 0.044 | 0.160 | 0.045 | -0.114 | 0.189 | 0.008 | -0.057 | -0.054 | -0.173 | 1.000 | |
| Thanks (T) | 0.038 | -0.040 | 0.179 | -0.005 | 0.066 | -0.007 | 0.062 | 0.034 | 0.033 | 0.139 | -0.009 | 0.187 | 1.000 |

Table A.3: Logit Regression Results for Subsamples

| | Gender | | Decision Round 1 | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| VARIABLES | Men | Women | Baseline=1 | Baseline=0 |
| *Message Categories:* | | | | |
| Equity | -0.022 | -0.120 | -0.179 | 0.061 |
| | (0.316) | (0.272) | (0.332) | (0.257) |
| Decency | 0.163 | 0.079 | -0.039 | -0.070 |
| | (0.399) | (0.336) | (0.412) | (0.301) |
| Friendly Greeting | 0.122 | 0.091 | 0.145 | 0.062 |
| | (0.186) | (0.202) | (0.399) | (0.148) |
| Power / Responsibility | -0.116 | 1.449*** | 1.031 | 0.510 |
| | (0.557) | (0.388) | (0.770) | (0.379) |
| Sum of Points | 0.605** | -0.025 | -0.469 | 0.366* |
| | (0.243) | (0.253) | (0.320) | (0.207) |
| Humor | 0.584*** | 0.905*** | 0.850** | 0.695*** |
| | (0.225) | (0.243) | (0.342) | (0.198) |
| Need | 0.605* | 0.693** | 0.776* | 0.669*** |
| | (0.335) | (0.295) | (0.434) | (0.251) |
| Random Role | -0.041 | 0.366 | 0.541 | 0.172 |
| | (0.374) | (0.326) | (0.554) | (0.271) |
| *Message Characteristics:* | | | | |
| Length | 0.003*** | 0.003* | 0.006*** | 0.002** |
| | (0.001) | (0.001) | (0.001) | (0.001) |
| # Spelling Mistakes | -0.105* | -0.064 | -0.199** | -0.061 |
| | (0.056) | (0.058) | (0.078) | (0.043) |
| Smileys | 0.574*** | 0.444** | 0.880*** | 0.387*** |
| | (0.145) | (0.173) | (0.247) | (0.123) |
| Please | 0.015 | -0.214 | 0.159 | -0.133 |
| | (0.183) | (0.187) | (0.363) | (0.140) |
| Thanks | 0.063 | 0.357** | 0.579 | 0.157 |
| | (0.209) | (0.151) | (0.495) | (0.136) |
| Period | 0.040*** | 0.025** | 0.044** | 0.032*** |
| | (0.015) | (0.012) | (0.020) | (0.011) |
| Constant | -6.917** | -7.258*** | -7.433*** | -8.308*** |
| | (2.688) | (1.868) | (2.872) | (2.295) |
| Observations | 893 | 922 | 501 | 1,254 |

*Note:* The dependent variable in all regressions is *share*, which takes a value of 1 if A decided to share the points. Robust standard errors (clustered on the level of subjects A) in parentheses. All regressions include session dummies and control for individual characteristics of dictator A (see Table 4).
* significant at 10%; ** significant at 5%; *** significant at 1%.

Table A.4: Robustness Check: Logit Regression Results for a Subject Fixed Effects Model

| | | Gender | |
|---|---|---|---|
| | (1) | (2) | (3) |
| VARIABLES | Full Sample | Men | Women |
| *Message Categories:* | | | |
| Equity | 0.161 | 0.389 | 0.022 |
| | (0.309) | (0.461) | (0.422) |
| Decency | -0.170 | -0.315 | -0.032 |
| | (0.448) | (0.645) | (0.631) |
| Friendly Greeting | 0.194 | 0.232 | 0.191 |
| | (0.228) | (0.341) | (0.314) |
| Power / Responsibility | 0.890 | -0.254 | 1.834** |
| | (0.571) | (0.842) | (0.793) |
| Sum of Points | 0.396 | 1.034** | -0.138 |
| | (0.293) | (0.443) | (0.402) |
| Humor | 1.165*** | 1.135*** | 1.238*** |
| | (0.293) | (0.438) | (0.403) |
| Need | 1.195*** | 1.231*** | 1.166*** |
| | (0.317) | (0.477) | (0.429) |
| Random Role | 0.331 | 0.161 | 0.455 |
| | (0.368) | (0.547) | (0.508) |
| *Message Characteristics:* | | | |
| Length | 0.005*** | 0.005** | 0.004** |
| | (0.001) | (0.002) | (0.002) |
| # Spelling Mistakes | -0.133** | -0.158 | -0.127 |
| | (0.067) | (0.102) | (0.091) |
| Smileys | 0.726*** | 0.722** | 0.720*** |
| | (0.193) | (0.287) | (0.268) |
| Please | -0.200 | -0.073 | -0.345 |
| | (0.218) | (0.320) | (0.302) |
| Thanks | 0.356* | 0.074 | 0.578** |
| | (0.196) | (0.294) | (0.268) |
| Period | 0.050*** | 0.071*** | 0.036 |
| | (0.017) | (0.026) | (0.024) |
| Observations | 1,124 | 488 | 636 |
| Number of Subjects | 78 | 34 | 44 |

*Note:* The dependent variable in all regressions is *share* which takes a value of 1 if A decided to share the points. The panel is defined by subjects A.
* significant at 10%; ** significant at 5%; *** significant at 1%.

## A.2 Instructions and Control Questions

### Instructions for Participants of the Main Experiment

The following section provides the english translation of the originally german instructions which the participants received in the main experiment:

#### General Instructions

Today, you are participating in a decision-experiment. If you read the following instructions carefully, you can earn money. The payment you receive depends on your decisions and the decisions of other participants.

During the whole experiment, it is not allowed to communicate with other participants. Thus, we ask you not to talk to each other. Please turn off your mobile phone as well. Breaking these rules will lead to exclusion of the experiment and the payment.

In case there is something you do not understand, please take another look at these instructions or give us a hand signal. We will come to your seat and answer your question personally.

During the experiment, we talk about points instead of Euros. The points you earned in the course of the experiment will be converted into Euros as follows:

**5 points = 1 Euro**

At the end of the experiment, you will receive the earned points, converted into Euros, in cash. For being on time, you will receive an additional 4 Euros.

On the following pages, we will explain the experiment to you in detail. Before the start of the experiment, we will ask you a few control questions on screen which are supposed to help you understand the procedure. The experiment only starts when all participants are completely familiar with the procedure of the experiment and have answered the control questions correctly.

#### The Experiment

In the experiment, you and the other participants each take on a role. There are two different role types. Half of the participants is participant A, the other half is participant B. Your role will be assigned to you randomly at the beginning of the experiment. You only

decide for your role and you keep this role for the whole experiment. In the following, a participant who takes on role A will be called participant A.

The experiment consists of several rounds in which you interact with alternating participants. In each round, the computer program selects groups of two at random of all the participants present. Each group consists of exactly one participant A and one participant B. Every round, new groups are randomly selected in such a way that you will always be matched with a participant with whom you have not interacted yet. Neither you nor the other participants get to know something about the identities of the participants in the groups; neither before nor after the experiment.

The experiment ends as soon as every participant A has interacted with every participant B once. If there are, for example, 20 participants in this experiment, i.e. 10 participants A and 10 participants B, the experiment will end after 10 rounds. Thus, in every round you are matched with a participant with whom you have not interacted yet.

As soon as the experiment starts, you will be informed about your role and the number of rounds on screen.

**Round 1**

At the beginning of each round, all participants of this experiment receive an endowment of points. Each participant A receives 50 points, each participant B receives 20 points. Now participant A can decide whether she wants to change the score of points as follows:

- Participant A can reduce her own points from 50 to 40 points which leads to an increase of participant B's points from 20 to 40.
- Participant A can keep her own 50 points; then, participant B also keeps his 20 points.

**From round 2 on**

As in round 1, participant A can decide about changing the score of points.

Before participant A decides about a possible change of the score of points, participant B sends a text message to participant A. The maximum length of the message is 300 characters. Being a participant B, you may write whatever you like with the only exception that you are not allowed to give any information about your identity. Participant A reads this message before she decides about a possible change of points.

The message that participant B sends to participant A is written only once, namely in round 1. In round 1, this message is not shown but from round 2 on, the message is shown to the matched participant A in the respective round.

Thus, participants B only take an active part in the experiment once (in the first round). In the other rounds, they do not write messages anymore. However, at the end of every round, they are informed about their payoff in points in this round.

**Payment**

**At the end of the experiment, the computer program will choose one of the previously carried out rounds at random. Only the group composition of this selected round and only the decision of participant A for this round are relevant for your payment.** For the other rounds, which are not selected, you will not receive any payment. The first round, in which participant A makes a decision without having received a message from participant B before, is equally likely to be selected as every other round. Thus, as a participant A, you should decide very carefully in every round because only after the experiment, you will learn which of your decisions is relevant for the payment. As a participant B, you should think carefully about your message in the first round because, from round 2 on, every participant A you interact with reads this message.

After you have made all decisions, you will learn which round has been selected by the computer program for the payment. Participants A get to know whether they decided for a change of points in this particular round and which payment they receive. Participants B get to know whether their points have been changed by the respective participant A and which payment they receive.

Following the experiment, we are going to ask you to fill in a questionnaire. Then, you will receive your payment in cash. Points are converted to Euro at an exchange rate of 5 points for 1 Euro.

**Control Questions in the Main Experiment**

The following section provides the english translation of the originally german control questions which were shown to all participants and had to be answered correctly by all participants before the start of the main experiment:

- "If participant A decides not to change the score of points, participant A will receive 50 points and participant B will receive 20 points." (TRUE)
- "If participant A decides to change the score of points, participant A will receive 50

points and participant B will receive 40 points." (FALSE)

- "In the end of each round, participant B learns which decision participant A made in this round." (TRUE)
- "In the beginning of each round, participant B can send a message to participant A." (FALSE)
- "Every round is paid out." (FALSE)

**Instructions for Participants of the Rating Session**

The following section provides the english translation of the originally german instructions which the participants received in the rating session:

**General Instructions**

We welcome you at LERN. Thank you very much for being here today.

Please notice: During the whole stay in the laboratory, it is not allowed to communicate with other participants. Thus, we ask you not to talk to each other. Please turn off your mobile phone as well. If you have any questions, please give us a hand signal. We will come to your seat and answer your question personally.

Your task today is the following:

A while ago, we conducted an experiment in which one part of the participants could write messages to the other participants. We would like you to read those messages and sort them into one or several categories.

At the end of the task, you will receive a payment of 15 Euros in cash.

On the next page, you find the instructions of the conducted experiment. Please read these instructions carefully to make sure that the context of the messages becomes clear.

The independent categorisation is an important part of our project. We appreciate your collaboration very much.

*- Instructions of the main experiment -*

**Your task today**

You are going to read messages on screen which have been written by a participant B of the experiment explained above. You should sort these messages into the following categories:

- **Friendly greeting**
  Participant B addresses participant A in a very friendly or polite way.
- **B argues with an efficiency gain due to a change of the score of points.**
  In this context, efficiency gain means that the sum of points of participant A and B increases due to a change of points, i.e. the "pie" that is divided becomes larger.
- **B uses equity as an argument.**
  By changing the score of points the points are distributed evenly. Participant A and B will only receive the same number of points if A decides to change the points.
- **B asks A to act decently.**
  Participant B appeals to participant A to act friendly or fair, for instance by appealing to A's conscience.
- **B emphasises that A bears the responsibility for both payments.**
  Participant B notices that participant A has the exclusive power to make decisions. He may explicitly point out to A that because of her special responsibility she should make her decision very responsibly.
- **The message is particularly humorous.**
  This category includes, for example, messages in which participant B tells a joke. However, you can also sort messages into this category that you believe to be particularly humorous for other reasons.
- **B explains why he needs the points / the money urgently.**
  Participant B mentions his special need and his dependency on the income from the experiment. In this context he might also explain specifically, what he would spend the additional points on.
- **B mentions the random allocation of roles and / or how A would feel being a B.**
  Messages belonging to this category are about the random allocation of role A and role B in the beginning of the experiment. Participant A could have become a participant B with the same probability.

Important: You can sort each message into **none, one** or **several** categories!

## A.3 Decision Screens of Participant A

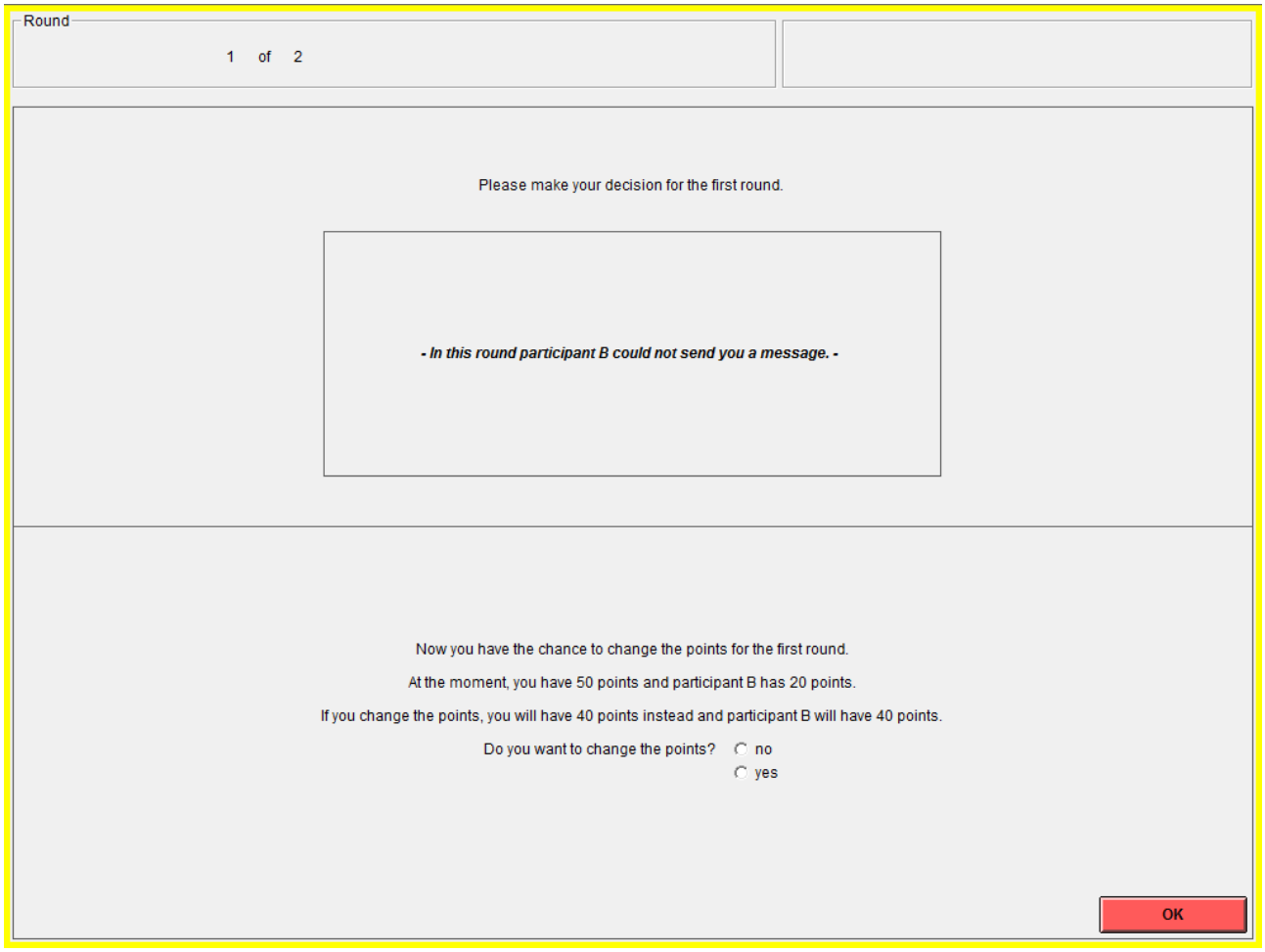


Figure A.2: Decision Screen of Participant A in the First Round

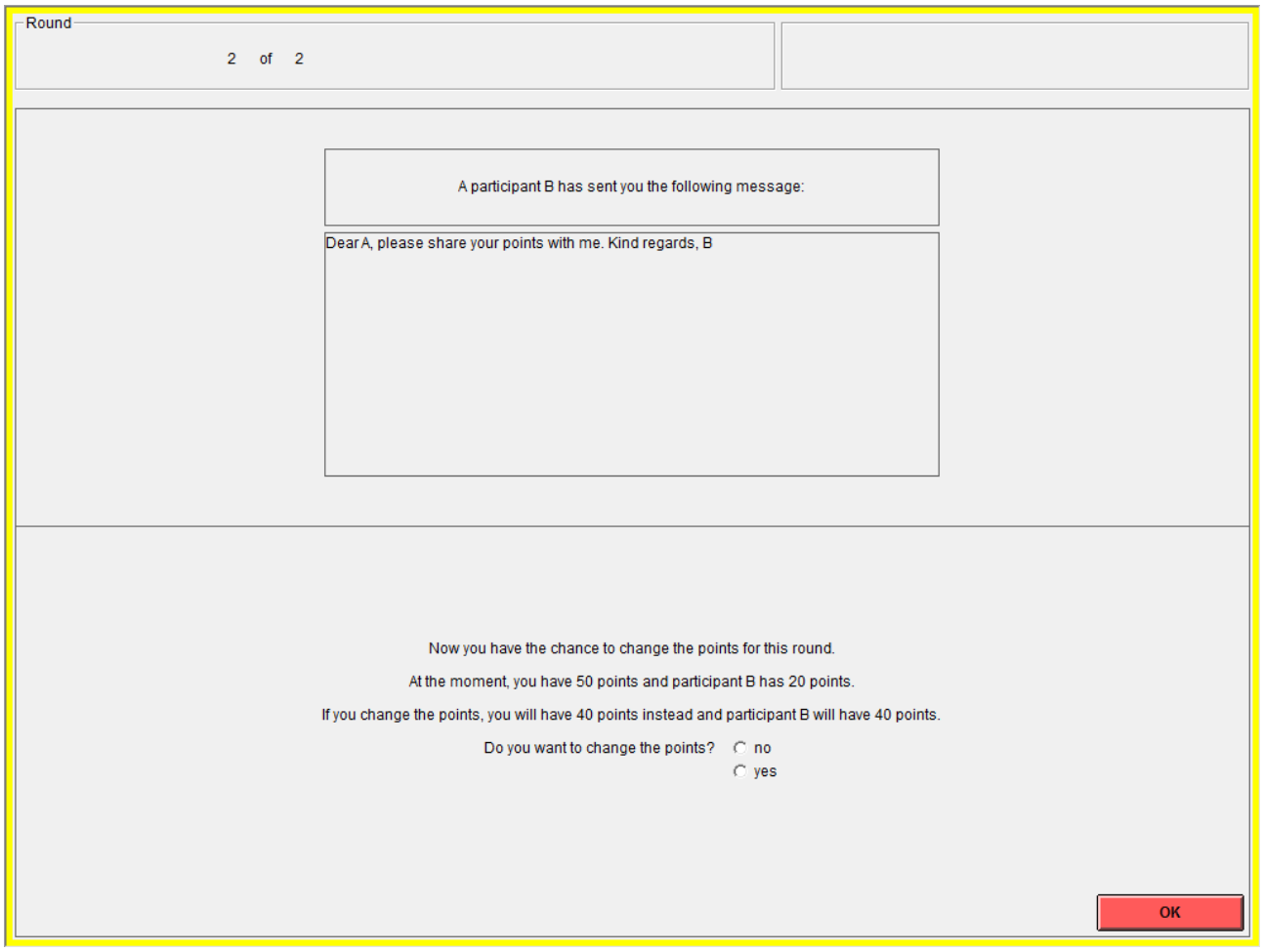


Figure A.3: Decision Screen of Participant A from Round 2 on.